Financial Inclusion: Concepts, Issues and Policies for India

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Abstract

This paper lays out some of the basic concepts surrounding financial inclusion, including access to banking, digital payments and financial literacy, as well as markets for health insurance, crop insurance, agricultural credit, small firm finance, and microcredit/ microfinance. It goes on to discuss various empirical and institutional studies of these dimensions of financial inclusion in the context of developing countries. The paper then outlines several recent studies for India which pertain to these specific aspects of financial inclusion. Finally, the paper draws lessons for policy-making and future research directions. Important considerations that emerge from the overview are the significance of social and economic context, the need to consider behavioral biases connected to situations involving time and risk, the interaction of different dimensions of financial inclusion, the importance of details of policy design, and the limited understanding we still have of many of the factors underlying the functioning of financial markets.

Keywords: financial inclusion, saving, insurance, credit, microfinance, financial literacy, India

JEL Codes: G21, G22, G38, G41, O16

[*] This is a revised and abbreviated version of an International Growth Centre synthesis paper with the same title, written in 2017: the topic seems very relevant for a volume that honors an economist, Pranab Bardhan, who has written extensively on aspects of inclusive development, namely, development which focuses on improving the lives of the poor. I am grateful to Eilin Francis and Arshad Mirza for valuable research assistance, and to Dilip Mookherjee for incisive comments on an earlier draft. Sole responsibility for shortcomings is mine.

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Introduction

Financial development is an obvious component of overall economic development, as well as helping to spur growth.[1] Studying the role of financial development in economic growth has gone from measuring it in terms of a single number such as the ratio of bank credit to an overall measure of economic activity (typically GDP) to considering the different dimensions of the concept. A typical decomposition of the concept of financial development considers depth, access, efficiency and stability (Cihak et al., 2012).[2] Financial depth corresponds to the dimension captured in measures such as credit-GDP ratios. Financial access is essentially the same as financial inclusion, and the latter term has become more common (World Bank, 2014).

The 2014 World Bank conceptualization of financial inclusion parallels basic ideas of financial depth: "the proportion of individuals and firms that use financial services" (p. 1). Subsequently, the Bank has developed a more elaborate definition:

> Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way.
> (http://www.worldbank.org/en/topic/financialinclusion/overview#1)

This definition highlights the different aspects of financial services that are ultimately what make finance an important part of the economy. As the web site notes, "Access to a transaction account is a first step toward broader financial inclusion since it allows people to store money, and send and receive payments. A transaction account can also serve as a gateway to other financial services…" There are several implicit assumptions in highlighting financial inclusion in this manner, in particular, the notion that the aforementioned financial services are not available to a set of people that is socially optimal, either in an instrumental sense of maximizing aggregate welfare (including social concerns for reducing inequality) and economic growth, or in

[1] Recent contributions to the enormous literature on the connection between financial development and growth include Beck et al., (2007), Law and Singh (2014), Aizenman et al., (2015) and Arcand et al. (2015).

[2] Sahay et al. (2015) consider depth, access and efficiency as components of financial development, and consider financial and economic stability separately. These analyses also distinguish between financial markets and financial institutions. Cihak et al. (2012), following earlier work on constructing indices of financial development, discuss various measures of access, including bank accounts per 1,000 individuals and percentage of firms with lines of credit (institutions), as well as percentage of market capitalization outside the 10 largest companies (markets). Sahay et al. (2015) use similar measures.

a broader sense of promoting rights and capabilities for all human beings (Sen, 1999). Possible reasons for suboptimality are taken up later in this paper.

The World Bank web site on financial inclusion goes on to remind readers of the beneficial ripple effects of financial access, beginning with basic formal transaction accounts. These benefits include lower transaction costs for daily economic activities, the ability to plan for longer-term needs, and the opportunity to create buffers for unexpected emergencies. For the better-off in both advanced and developing countries, both financial access and its benefits are taken relatively for granted, although the limits and challenges of access are much more severe in poorer economies or regions.[3]

Other discussions of financial inclusion have different emphases, but with similar scope. For example, the introduction to a collection (Cull et al., 2012) of empirical analyses of financial inclusion begins by highlighting microcredit as being symbolic of growing financial inclusion, though it goes on to note savings, transfers and insurance as other important services. While many such financial services are missing or barely provided in poorer countries such as India, the challenge of providing microcredit is just one example of pervasive credit market imperfections that hamper development. These imperfections are apparent in the very limited access of most individuals in, say, India to formal credit markets, and the large disparities in borrowing costs between formal and informal credit markets.[4]

Cull et al. (2012) also note the importance of technological and product innovation in improving inclusion. Karmakar et al. (2011), in assessing financial inclusion in India, begin by emphasizing the need to expand the reach of formal financial institutions such as banks, as a channel for access to a range of financial services. The role of technological innovation in reducing costs of service provision is highlighted, as is the need for financial counseling: indeed, behavioral and other demand side aspects of financial inclusion deserve as much attention as technological and supply side approaches.

Karlan and Morduch (2009) provided a major survey of "Access to Finance," which still represents the most comprehensive academic review of the topic. They pointed out that research in the area had already gone well beyond the initial focus on microcredit for investment by small entrepreneurs. The authors discuss new credit mechanisms and devices that help households manage cash flows, save, and cope with risk. In this context, they consider issues of contract design, product innovation, regulatory policy, and bottom-line economic and social impacts. The survey also relates the empirical evidence to theoretical concepts rooted in behavioral economics and to the use of randomized evaluation methods. Such randomized trials are highlighted as particularly important in the testing of potential innovations in financial products and services,

[3] The discussion of the benefits of financial inclusion ties in with the detailed micro-level account of the lives of poor people in Banerjee and Duflo (2011). For one example of Pranab Bardhan's many contributions to the topic of improving the lives of the poor, see Bardhan (2007).

[4] Dilip Mookherjee (personal communication, February 2017) has emphasized the benefits of financial inclusion for better targeting of government welfare programs, and also control of corruption by intermediaries. For example, Muralidharan et al. (2016) evaluate the impact of biometric payments infrastructure to make social welfare payments in Andhra Pradesh, and find large reductions in leakage of funds.

and in the institutional and technological contexts in which they are delivered. Karlan and Morduch ultimately emphasize the importance of attention to detail in finding workable solutions to lack of financial access, a natural conclusion when trying to reach marginal populations that are not natural sources of profit for sellers of financial products and services.

Aggarwal and Klapper (2013) build on Karlan and Morduch, and organize their discussion around various barriers to financial inclusion, as well as policies to overcome these. Among the barriers they highlight are time and financial costs of opening and maintaining bank accounts, as well as the cost of meeting documentation requirements (which may be effectively infinite if the required documentation is not possible). They discuss ways of reducing these costs, which can include regulatory policy changes, acceleration of adoption of digital technology-based mechanisms, institutional innovations such as the use of bank agents, or, typically, some mix of all three of these approaches.

A still more recent, though relatively brief, survey is that of Karlan et al. (2016). Echoing themes in the two earlier surveys, the authors emphasize the challenges of market imperfections and deviations from fully rational behavior for efforts to increase financial access. Yet, they draw optimistic conclusions from empirical studies about the potential of digital technologies and of savings products to provide measurable benefits, though noting that areas such as microcredit and insurance present greater difficulties for successful innovation.

The current paper does not substitute for or supersede these surveys, but builds on them. The rest of this paper is organized in terms of aspects of financial inclusion, or behavior pertinent to it. These nine sections cover financial inclusion in general, banking, microcredit and microfinance, small firm finance, agricultural credit, farmers' insurance, health insurance, financial literacy and behavioral factors. Each section discusses research from a variety of developing countries, including India, though it is cannot be exhaustive given the size of the literature. The final section concludes by summarizing what we know and perhaps do not know, with the latter being a guide to possible future research and analysis. A key theme of the paper, in line with previous surveys, is that succeeding in the various goals associated with promoting financial inclusion requires careful attention to detail with respect to institutions, markets and human behavior, and this in turn requires targeted and well-designed research. The focus on India allows for some potentially more targeted policy recommendations, as well as specific research directions.

Financial Inclusion Overall

Several cross-country analyses of financial inclusion are available. Demirgüç-Kunt and Klapper (2013) summarize a public data set that measures the financial behavior of adults in 148 countries.[5] They use it to benchmark financial inclusion, and document the most important barriers to bank use, such as the cost of opening account and the need for documentation of identity, residence and so on. Sarma and Pais (2011) analyze cross section data from several dozen countries, and find that levels of human development and financial inclusion are positively

[5] Their paper is based on the Global Findex Database: see http://datatopics.worldbank.org/financialinclusion/.

correlated. More specifically, lower income inequality, higher literacy levels and better physical and communication infrastructure are all associated with greater financial inclusion. Cull et al. (2012) includes several overviews of the state of global knowledge of financial inclusion, with data that shows that many of the poor do use formal financial services, suggesting a scope for greater inclusion: poverty by itself need not be an insurmountable barrier.

Karmakar et al. (2011) provide a comprehensive account of the challenges of financial inclusion in India. They identify institutional and resource constraints, and discuss targeting efforts that have focused on rural populations, women's groups, tribal areas, or combinations of these. They consider the different dimensions of financial services, including transactions, savings, credit and insurance, and possible institutional and technological innovations, including digital tools for identification, payments, and storage. The analysis provides a detailed account of many past and current policy initiatives that intersect with various dimensions of financial inclusion, on both the demand and supply sides. It conveys a broad sense of the challenges encountered in policymaking and implementation, but provides no engagement with the empirical academic literature on financial inclusion, so the policy recommendations lack a firm basis.

Also for India, Badarinza et al. (2017) use a major household survey to provide a cross-sectional picture of both the asset and liability sides of household balance sheets.[6] They document that, in India, lower proportions of younger households hold financial assets, even compared to China, let alone developed countries. Other striking features of the financial landscape are that households do not reduce real estate holdings as they cross retirement age, there is no drop off in mortgage loan participation at these ages, and unsecured debt is more significant in all age groups. Similar differences are reflected in comparisons across the wealth distribution. Savings in retirement account are nearly absent. The authors document a high reliance on gold as a form of savings, lack of access to bank branches as a constraint to financial savings, striking regional variations, and the importance of education in supporting higher use of financial savings.

Campbell et al. (2012) analyze India's mortgage market. As indicated from the household survey, Indians' use of mortgages for housing is quite limited. Campbell et al. focus on the impacts of mortgage market regulation, yielding a useful case study of the impacts of national-level policymaking on financial inclusion. They analyze administrative data on over one million loans originated by an Indian mortgage provider, examining loan pricing and default rates. The period was one in which the availability of mortgages was increasing fairly rapidly, but so was regulation of the market. Lending to small borrowers is an important aspect of financial inclusion in the context of the housing market, and the data indicate that regulatory changes designed to promote this goal were successful. However, there was a spike in defaults, suggesting the possible costs of policies that neglect the capacity and incentives of market participants. On the positive side, the data imply that mortgage lenders were able to learn from the experience of surging defaults, and priced risks more accurately in subsequent years. The lessons of this study are potentially generalizable. Policies designed to support goals of financial inclusion require careful attention to market structure, incentives of market participants, and learning and

[6] The data is from the 2012 All India Debt and Investment Survey (AIDIS), conducted by the NSSO, with over 100,000 households sampled.

adjustment through ongoing analysis of market data. Private profit-making entities have incentives to engage in the latter, but their behavior ought not to be overly distorted by the regulatory structure: regulations have to balance risks and efficiency against equity-enhancing goals of financial inclusion.

Banking

Among aspects of financial inclusion, we begin with banking, in keeping with the observation that access to a transaction account can serve as a foundation or gateway for broader financial access. One can conceptualize banking to include institutional variations such as post office accounts, and technology-enabled innovations such as agent banking. Two studies from India provide evidence that targeting bank access can have positive impacts. Burgess and Pande (2005) examine the social banking program introduced after India's bank nationalization in 1969. Using panel data for 16 states over 1961 - 2000, with information about the number of bank branches, rural credit and saving shares, and poverty and wage estimates, the authors show that branch expansion was associated with reductions in rural poverty. In a related analysis, Burgess, Wong and Pande (2005) found that national policy that caused banks to open relatively more branches in less financially-developed states and expand into rural unbanked locations reduced poverty across Indian states. They also argued that enforcement of directed bank lending increased bank borrowing among the poor, in particular, for low-caste and tribal groups.

The Burgess-Pande findings were tempered by a subsequent analysis of a similar period: Kochar (2011) used district-level data for India's largest state, Uttar Pradesh, and took account of potentially confounding correlations of two sources of credit expansion at that time. She found evidence of increasing inequality, with the non-poor benefiting more from bank branch expansion than did the poor.[7] Using later data, Young (2015) highlighted several positive impacts of expanding bank access on economic activity, using a well-structured causal analysis, thus providing strong evidence of the benefits of bank expansion in India.

In a more micro-level study, Somville and Vandewalle (2015) conducted a field experiment in rural India to study the effect on savings of identical weekly payments on a bank account (treatment group) or in cash (control group). They found a large and persistent treatment effect, with savings increasing by over 100 percent within three months. Villagers given cash, on the other hand, did not save more in other assets, but increased consumption, suggesting that having a bank account can have a net positive impact on total savings. However, Prina (2015) found more limited effects of having bank accounts for female household heads in Nepal. They were given access to bank accounts with no fees. Impacts on income, aggregate expenditures, and assets were too imprecisely estimated for definite conclusions, although there was evidence of a higher ability of households to cope with shocks. Finally, Dupas et al. (2016) experimentally

[7] In contrast, a cross-country study by Anson et al. (2013) suggests that post office savings schemes tend to be of greater benefit to the relatively poor, even though post offices may not have full bank status, as is the case in India. Post office savings accounts in India can also be used to make government welfare payments, as was discussed in the introduction.

tested the impact of expanding access to basic bank accounts in three countries (Uganda, Malawi, and Chile). While the number of deposits increased, survey data showed no clearly discernible effects on savings or any downstream outcomes.

Such studies suggest that policies merely focused on expanding access to basic accounts are not guaranteed to improve outcomes, and that there are other factors that influence success and failure, and which need to be identified. Despite mixed evidence, research suggests that there are mechanisms that can bring down the cost of access to formal banking for poor households, and thereby improve their savings strategies. In India, there has been a massive, nationwide effort to achieve banking access for vast numbers of the country's poorer citizens – the Jan Dhan part of JAM (standing for Jan Dhan (banking), Aadhaar (identity) and Mobile (transactions), discussed more later in the context of digital payments). While technology is an important part of facilitating access and maintenance of bank accounts, making these accounts more useful to small account holders is important for long-run sustainability.[8] Bank operations and everyday practices in India have the potential for improvement (see Singh, 2015 for a brief discussion of credit risk management in Indian banks).

Cole et al. (2015) tackle the issue of bank operations through an experiment with commercial bank loan officers in India. This was a high-stakes field experiment, providing the subjects with tangible incentives, permitting a "clean" test of how performance compensation affects risk-assessment and lending in a banking environment. The loan officers in the study were paid to review and assess over 14,000 actual (but previously processed) loan applications. They were provided with different kinds of exogenous incentive schemes, and, while the subjects did not know how the loans had performed, this information was available to the researchers. The results indicated that high-powered incentives do lead to greater screening effort, separating "good" from "bad" borrowers, and to more profitable lending decisions. However, typical features of loan officer compensation contracts such as deferred compensation and limited liability, toned down the incentive effects. Career concerns and some personality traits also affected loan officer behavior, but the impact of incentive schemes did not vary with personality traits such as risk-aversion, optimism or overconfidence. Performance incentives are important across all kinds of organizations, but areas such as bank lending are particularly important in the context of India's financial inclusion goals. Expanding banking without improving the performance of bank employees, particularly those who make lending decisions that can lead to productive investment and job creation, can be a significantly suboptimal strategy.

A different approach to improving the performance of conventional banks is the creation of alternative kinds of banking institutions. Rural cooperative banks have a long history in India, but have been subject to political capture. Another alternative is the model represented by India's Shri Mahil Self Employment Women Association Sahkari (SEWA) Bank, the oldest women's bank in the world. Targeting women represents a vital aspect of financial inclusion since women at any income level (but especially poorer ones) are less likely to have financial autonomy and

[8] Indeed, in India access to bank accounts is perhaps easier than in many other developing countries, because of the creation or existence of no-frills type accounts and post office accounts. Arguably, therefore, this aspect of financial inclusion in India has moved beyond access to basic accounts to access to useful services and products.

access to financial services than their male counterparts. Field et al. (2016) use data on the expansion of the SEWA Bank to examine the impact of access to microfinance on women's labor force participation. This data pertains to urban settings, so the distance or scarcity aspects of constraints to financial access are not salient. Beginning in 1999, SEWA Bank began a major expansion of the number of loan collection officers they employed. This significantly reduced the transaction cost of getting a loan in Ahmedabad, Gujarat's capital and largest city, and thereby increased access for many women to microloans. The results indicate that access to such loans helped integrate women into the labor force over a period of several years. This effect was driven by greater participation of women in household business activity, although not necessarily a sustainable change in female empowerment, since the share of household income produced by women increased but with a diminishing effect over time. An intriguing effect in the data was a reduction in fertility associated with increasing participation in the labor force. This analysis hints at the importance of financial inclusion for a range of social and economic outcomes pertaining to the status and welfare of women in India.

Microcredit/ Microfinance

Microfinance and microcredit have received disproportionate attention as vehicles for providing needed access to funds for the poor. Key ideas behind these efforts include pooling of funds, risk sharing and joint monitoring and liability. Target populations, even if they have bank accounts, would almost certainly not qualify for traditional bank loans. Many might use "informal" financial services of moneylenders, with the potential of being trapped in unsustainable debt situations. Of course, it is now recognized that microfinance is not a magic bullet for providing access to credit for the poor, but an enormous body of empirical research provides an understanding of how the institution works in different contexts.

Several meta-analyses are now available. Ahlin, et al. (2011) collected data on 373 MFIs and merged it with country-level economic and institutional data to provide evidence for complementarity between MFI performance and that of the broader economy. Van Rooyen, et al. (2012) systematically reviewed the evidence of the impacts of micro-credit and micro-savings on poor people in sub-Saharan Africa. They considered impacts on income, savings, expenditure, and the accumulation of assets, as well as a range of non-financial outcomes including health, food security, and education, and concluded that microfinance has mixed impacts on the livelihoods of the poor.

Many recent studies of microfinance have used randomized controlled trials (RCTs). Banerjee, Karlan and Zinman (2015), provide an introduction and review for six randomized evaluations of microcredit and conclude that there is a "consistent pattern of modestly positive, but not transformative, effects." One study in this collection (Banerjee et al., 2015) reports on an RCT conducted in Hyderabad, using random selection of areas for opening of a branch of a microfinance institution (Spandana). In the treatment areas, households were more likely to have a microcredit loan, but there were no significant improvements in health, education, and women's empowerment. Households with access to credit were not more likely to start new

business, but they did invest more in their existing businesses. Other studies have been able to analyze large-scale government initiatives, such as the Thai Million Baht Village MFI program. Kaboski and Townsend (2011, 2012) used pre- and post-program panel data and quasi-experimental cross-village variation in credit per household, and found that village MFI funds increased total short-term credit, consumption, agricultural investment, and income, but perhaps decreased overall asset growth.

Two recent studies for India analyze the impacts of certain contractual features in microcredit. Field et al. (2013) conducted an RCT that compared a standard microcredit contract, requiring repayment to begin immediately after the disbursement of the loan, to an alternative contractual setup that included a two-month grace period. The study found that providing a grace period increased short-run business investment as well as long-run profits but doing so also raised default rates. These results suggest that microcredit contracts that require early repayment discourage illiquid risky investment. There are costs to relaxing this constraint because of higher default rates (associated with greater adverse selection as well as moral hazard) , but the net welfare impacts of subsidizing microfinance institutions to be able to withstand higher default rates might be positive, because of higher microenterprise growth and greater reductions in household poverty.

Another study (Barboni, 2016) also tackles the issue of contractual design in microfinance, focusing as well on repayment flexibility. A model of adverse selection predicts that lenders can achieve higher profits by offering a menu of choices which include rigid and flexible repayment schedules, instead of just the standard rigid contract. A set of in-the-field experimental games conducted with Indian micro-entrepreneurs showed that more entrepreneurial borrowers were more likely than less entrepreneurial ones to take-up the flexible contract. This separation was even more pronounced when the flexible schedule was costlier relative to the rigid contract.

Studies have also been done to check the robustness of earlier claims. In particular, Roodman and Morduch (2009) replicate and reanalyze an influential study of microcredit impacts on poor households in Bangladesh. That study was celebrated for showing that microcredit reduces poverty, but the re-analysis shows that the original results on poverty reduction disappeared after dropping outliers, or when using an estimation method robust to such outliers. Hence, even in microfinance, an area of financial inclusion where significant research has been carried out, there is much more to be learned about the factors that influence the success of such efforts.

Small Firm Finance

Research on microfinance overlaps with analyses of small firm finance, since the latter can include micro-entrepreneurs. Studies examine information constraints as well as credit constraints. De Mel et al. (2011) examined the role of information through an RCT in Sri Lanka. The intervention was designed to improve access to credit among high-return microenterprises by providing information about the microfinance loan product, along with a reduction in the number of personal guarantors required for these loans, but without subsidizing interest rates or

requiring group lending. The outcomes suggest that information alone is unlikely to be enough to efficiently improve access. Dupas and Robinson (2013) used an RCT to identify significant barriers to savings and investment in rural Kenya among the self-employed. Randomly selected individuals were given free access to non-interest-bearing bank accounts among two types of self-employed: female market vendors and men working as bicycle taxi drivers. Despite large withdrawal fees, a substantial share of market women used the accounts, were able to save more, and increased their productive investment and private expenditures. But, for the men, there was no effect.[9] Karlan et al. (2015) experimented with providing consulting and financial capital to microenterprise tailors in Ghana. These infusions changed investment and business practices, but did not lead to significant changes in profit and were not sustained in the long run.[10]

A large literature examines financing constraints for small and medium enterprises (SMEs) more generally, particularly in developing countries. Beck (2007) surveys empirical research along these lines, showing that SMEs are more constrained by financing and other institutional obstacles than are large firms, with this situation being made worse by weaknesses in the financial systems of many developing countries. For example, Beck and Demirguc-Kunt (2006) use cross-country panel data, and find that financial and institutional development affect SMEs' growth, and that SMEs are credit constrained, so that greater access to external finance can level the playing field between firms of different sizes. Another cross-country study, Love and Pería (2015), finds that greater bank competition improves firms' access to finance.

Country-specific studies of small firm financing constraints find similar types of results. Banerjee and Duflo (2008) use data from a directed lending program in India to show that firms there are credit constrained. De and Singh (2014) combine panel data of reported financial information for a sample of SMEs in India with data from a survey of the same firms, regarding the role of relationships in supply of inter-firm credit. They find that firms that are unsuccessful in generating internal funds or bank loans have better access to relationship-based credit, but the latter is also rationed. In a similar vein, Ayyagari et al. (2010) find that Chinese private sector firms that have access to formal finance grow faster while firms that rely on informal finance do not.

To put this issue in context for India, there is considerable evidence that, while liberalization and economic reform beginning in 1991 led to new entry of firms, more recently, industrial dynamism has stalled (Alfaro and Chari, 2009, 2014). There are a variety of factors constraining growth of smaller firms, but finance is certainly one of them (Allen et al., 2007; Shukla, 2015). These earlier studies did not, however, establish clear causal linkages.

A study by Raj and Sen (2013) fills the gap, analyzing very small family firms – the predominant type of firm in the informal sector in India – and the role of finance constraints in preventing them from transitioning to larger firms that employ non-family labor. The authors use unit level data drawn from national surveys of informal manufacturing by the NSSO. They supplement this with panel data analysis of 364 districts, estimating the effects of financial development on firm

[9] Hence, this analysis also connects with studies of banking access, discussed earlier.

[10] See also Cull et al. (2011, 2016).

transition at the district level. They present strong evidence that finance constraints play an important role in firm transition from family-labor-only firms to small firms that use hired labor, but even more so for the growth of the latter beyond six workers. Firm capabilities matter as well: for example, firms that maintain formal accounts are more likely to make the transition than firms that do not. Other factors that affect transition and growth include working as sub-contractors, having access to electricity, being located in an urban area, and being in a district with higher levels of human capital. An important result is that government assistance, such as loans, training, and marketing, does not help firms transition and grow, suggesting that policy may be more effective in focusing on relaxing financing and other constraints for small, informal sector firms.

Agricultural Credit

The importance of food production and the size of the agricultural sector in many developing countries make agricultural credit politically and economically more salient than credit for other kinds of products and services. India is an important illustration of these statements, with loans to farmers and forgiveness of those loans being tied to electoral considerations (e.g., Cole, 2009). On the other hand, there is also evidence that small and marginal farmers still depend on informal lenders, and this can contribute to agrarian distress in some cases (e.g., Singh, 2012; Gill, 2016).

Micro-studies of loans to farmers suggest that there are inefficiencies in the allocation and use of agricultural credit. A study of 300 farmers in Nigeria (Oboh and Ekpebu, 2011) finds delays in disbursing bank loans as well as considerable diversion of loans to non-farm purposes. Rahman (2011) finds that farm credit in Bangladesh may be inefficiently and insufficiently allocated, especially in the context of a positive correlation between the credit and output. Studies for India (e.g., Sharma and Kumawat, 2014) and Pakistan (e.g., Mehmood et al., 2012) also document similar situations: loans are made and monitored inefficiently, so even though credit is rationed, increasing its supply may not be welfare improving in the absence of institutional improvements such as better targeting and monitoring.

Even when farm loans are subsidized and forgiven, small farmers may still often face substantial financial distress. Maitra et al. (2014) explore an alternative approach to credit for small farmers. Randomly selected villages in West Bengal state in India participated in a field experiment with an innovative variant of microcredit, trader-agent intermediated lending (TRAIL): borrowers of individual liability loans in some villages (all small farmers) were selected by local trader-lender agents, who received incentives in the form of repayment-based commissions. In other villages, small farmers had access to a more conventional group-based lending program (GBL). TRAIL loans did much better than GBL loans in increasing production of the leading cash crop and farm incomes. The underlying mechanism for this result included the fact that borrowers selected by TRAIL agents were more able farmers than those who self-selected into the GBL scheme, although this pattern of selection did not completely explain the observed difference in income impacts. An implication of this work is that it points out a possibility for leveraging existing

institutions or expertise, somewhat similar to how ITC used existing commission agents to facilitate its Internet-based e-choupal procurement scheme (Goyal, 2010).

A study by Mitra et al. (2012) also has some indirect implications for agricultural credit policy for small farmers. In much of India, small farmers do not sell directly to large buyers, but rely on intermediaries: credit constraints are one factor in this market structure, as are asymmetries of information. This study analyzes how potato farmers in West Bengal sell their crop to local traders, including how prices and intermediary margins are determined. Small farmers in randomly chosen villages were provided information about daily wholesale prices, either publicly or privately. The evidence did not support the idea that risk was being shared between farmers and traders, but was consistent with small farmers having limited alternatives for selling their produce, making price information of little value. More specifically, providing farmers with access to market price information to reduce their informational asymmetry vis-à-vis traders did not have a significant average impact on farmgate prices, while raising pass-through of wholesale market prices to farmgate prices, because of the lack of access of these farmers to direct sale in wholesale markets. One possibility is that easing credit constraints for small farmers (so that they have to rely less on trade credit from intermediaries) could improve their bargaining power and increase the value of price information for farmers.

Farmers' Insurance

Insurance for developing country farmers is an important new area of experiments in financial inclusion. Weather insurance and crop or livestock insurance may protect small and marginal farmers from distress. For example, Nair (2010) used micro data from the Agriculture Insurance Company of India, to argue that weather insurance is more market-based and financially sustainable than yield-based insurance. Cole et al. (2014) examined the market for rainfall insurance purchases by rural farming households in Gujarat. Demand was highly sensitive to payouts being made in a household's village in the most recent year, perhaps suggesting a trust effect. The observations of Gine (2009) complement some of these results, noting the problem of correlation of rainfall and macroeconomic conditions, and the need to make rapid payouts to liquidity-constrained farmers, in order for the insurance to be effective.[11]

Issues of price sensitivity are explored in the context of livestock insurance in Ethiopia by Takahashi et al. (2016). Randomly distributed learning kits improved subjects' knowledge of the products but did not lead to greater insurance uptake. On the other hand, reduced price due to randomly distributed discount coupons has an immediate, positive impact on uptake, without dampening subsequent period demand. The interaction of credit and insurance is analyzed in Karlan et al. (2011), trying to address a key question for development: does risk inhibit investment? They conducted an RCT in rural Ghana, and offered the treatment groups loans that forgave 50 percent of the loan if crop prices dropped below a threshold price. A control group was offered a standard loan product at the same interest rate. Surprisingly, the indemnity

[11] See also Gine, Townsend and Vickery (2008) for earlier evidence of the Indian experience.

component had little impact. Binswanger-Mkhize (2012) also expresses pessimism about agricultural insurance based on weather indices, pointing out that credit and cash constraints for poor farmers make it difficult for them to purchase insurance in advance of the harvest.

However, Karlan, et al. (2014) provide more positive evidence of the benefits of access to agricultural insurance. The authors conducted several experiments in which farmers were randomly assigned to receive cash grants, grants of (or opportunities to purchase) rainfall index insurance, or a combination of the two. The observed demand for this insurance was strong, and insurance led to significantly larger agricultural investment as well as riskier production choices. These results indicate that uninsured catastrophic risk can be a binding constraint to farmers' investment. There was also evidence of social network effects and overweighting recent events, suggesting that careful design of policies and financial education are both needed in implementing such innovations in financial products.[12]

Agricultural insurance products for small farmers are challenging to implement: besides being income constrained, farmers lack experience with insurance, financial literacy, and general education. Gaurav et al. (2011) conducted a field experiment (RCT) involving different methods of marketing rainfall insurance to small-scale farmers in Gujarat, India. Financial education had a positive effect on rainfall insurance adoption, but only one marketing intervention, a money-back guarantee, had a consistent and large effect on farmers' purchase decisions. This suggests that farmers do not have the experience to be able to trust the new insurance product, and the guarantee mitigates their risk perceptions. While such guarantees are uncommon or absent for insurance in mature markets, the use of money-back guarantees for various kinds of products is widespread, especially where the product is novel or the seller is not trusted.

A major research project (Mobarak and Rosenzweig, 2013) examines the interaction between informal risk sharing, index insurance and risk-taking using a large-scale RCT. The authors randomized offerings of rainfall insurance contracts to cultivating and landless households in a set of Indian villages. Census data on caste networks permitted characterization of the nature and extent of informal risk sharing before the contracts were offered. The authors found that: (1) informal group-level risk sharing had the potential to make up for weaknesses in weather index insurance, and increase the demand for such index insurance; (2) index insurance had the potential to do better than informal indemnification in incentivizing farmers to invest in riskier technologies with higher average returns; and (3) offering insurance contracts to cultivators could lead to increased risk-taking, and to increased risk exposure of agricultural laborers, making the latter more likely to purchase weather insurance themselves when aware of this possible effect. Such studies can provide important guidance for the design of weather insurance at a regional scale, and ultimately for policymakers seeking to achieve widespread adoption of such insurance, making it more sustainable.

[12] A recent review of the evidence on microinsurance (Platteau et al., 2017) identifies price, quality, limited trust in the insurer, and liquidity constraints as factors limiting demand, along with lack of understanding of the products. See also De Bock and Gelade (2012).

Health Insurance

Health insurance for the poor represents a dimension of financial inclusion that intersects with much larger concerns about access to health care. While many industrial countries provide universal publicly funded health care, others, most notably the United States, do not, with exclusion disproportionately affecting the less well-off. The centrality of health to people's lives also makes it an exceptionally emotive subject. The financial aspect enters health care because of its potentially high costs, and developing countries obviously face more stringent constraints. In such cases, health insurance programs for the poor are meant to increase access to health care when the public delivery system is unable to do so effectively.

One approach to inclusion is through community-based health insurance schemes: essentially a form of mutual insurance. For example, a study for Senegal (Jutting, 2003) suggests that these can extend access to health care, although the poorest of the poor are still excluded. A study of community-based insurance for China (Wang et al., 2005) finds that the benefits of the insurance are skewed toward richer participants, highlighting the difficulties and the importance of proper targeting and design. In general, qualitative case studies across countries suggest that micro-insurance for health care is a complex undertaking with significant challenges (McCord, 2001).[13]

India has seen significant recent efforts to develop health insurance programs for the poor, and many studies of these efforts. Palacios et al. (2011) is a collection of such studies with a great deal of institutional detail, including discussing some of the problems of implementation. A study by Nandi et al. (2013) carefully examines the determinants of enrolment in the new health insurance schemes.[14] Selvaraj and Karan (2012) argue that publicly funded health insurance schemes with private provision do not work. They argue against involving the private sector at all, their concerns being that private providers will cherry-pick, and that there are high administrative and other costs associated with private sector involvement. Ravi and Bergkvist (2015) posit a different conclusion: allowing for the length of time of operation of publicly financed health insurance schemes (PFHISs) reveals impacts that are more positive than found by Selvraj and Karan. However, two other studies of Indian health insurance schemes (Sood et al., 2013; Karan et al., 2015) also find little or no impact of these schemes on the health expenditure of the poor. Importantly, there are differences between the performance of the national health insurance scheme and various state-level schemes, with some of the latter doing better (e.g., Rao et al., 2014).

Implications of health insurance for financial inclusion are brought out in Banerjee et al. (2014). In an RCT, SKS the largest MFI in India bundled a health insurance component with micro-finance lending. But no one seemed to demand insurance, even people for whom there was clearly value. A substantial fraction of clients preferred to let go of microfinance rather than pay a moderately higher interest rate and keep their loan, highlighting that adverse selection was a moot concern in this setting. The study was somewhat confounded by the financial trouble SKS

[13] McCord compares schemes for Cambodia, India, Tanzania and Uganda.

[14] Ito and Kono (2010) explain low take up of such schemes in India in terms of behavioral factors such as present bias.

got into by time that the final survey was done. In a related study, Islam and Maitra (2012) highlighted the health insurance effect of general microcredit. Using a large panel data set from rural Bangladesh, they found that households that had access to microcredit did not need to sell livestock in order to insure their consumption, when confronted with health shocks that required unexpected expenditures or led to lost income.

Health care is a credence good, relying on trust concerning provider quality. In such cases, referrals through social networks can be very important. These issues are compounded when new health insurance products involve using new or untrusted providers – say a private doctor versus a government doctor. Two recent studies examine aspects of these social network effects in the context of health insurance in India. Berg et al. (2012) study how incentive pay and social distance interact in the process of disseminating information about India's RSBY public health insurance program, using a large-scale RCT conducted in South India. This involved hiring local agents to disseminate information about the insurance program. These agents were paid either a flat fee or a variable rate that depended on the subsequently measured level of knowledge about the program in the eligible population. Incentive pay improved knowledge transmission to households that were socially distant from the agent, but not to socially similar households.

Debnath and Jain (2015) examined the role of caste networks, within villages and urban wards, in affecting utilization of Aarogyasri, Andhra Pradesh's state-level publicly financed health insurance program. The authors hypothesized that local caste networks could play a vital role in transmitting various kinds of information about the program and the available health care providers, as well as signaling that using formal healthcare through the program was socially acceptable or appropriate. Using administrative data on program claims the study estimated that a unit increase in Aarogyasri use and associated claim amounts in the same caste and village increased first-time claims in the same group. However, the behavior of other castes inside or outside the village, or same-caste peers outside the village in the same sub-district, had no significant effect on program utilization.

Payments Technologies

Because the poor face high transaction costs, even when using cash (when trying to save, cash may not be a convenient or safe store of value), reducing such costs through technological innovations can foster inclusion. There is robust evidence that digital payments technologies have positive impacts. Much of this evidence comes from the M-PESA scheme in Kenya (Jack, Ray and Suri, 2013; Jack and Suri, 2014): users are able to make more frequent and longer distance money transfers, and manage income variability better for smoother consumption patterns. In Kenya, the existence of a dominant telecom provider helped, although technological limitations in interoperability reduced access for some and stifled competition (Kendall et al., 2011). In Tanzania (where M-PESA is also available), an interoperability agreement among several providers achieved widespread coverage (Bourreau and Valletti, 2015). In other countries, telecom companies have provided specific digital services: for example, Orange Money (Jordan), enables consumers to pay bills and to make point-of-sale purchases; Smart

Money (Philippines) and Regalli (Dominican Republic) enable customers to make bill payments. There are complex issues of infrastructure, regulatory policies, and even details of user interface design that can affect the success of digital financial services (Mas and Morawczynski, 2009; Medhi et al., 2009).

In India, digital payments have been conceptualized as one component of a three-part strategy for financial inclusion using digital technologies: JAM, introduced earlier. Biometric identity cards in India (Aadhaar) have reduced corruption in welfare programs, economized on expenditures and even had some positive impacts on outcomes (Banerjee et al., 2016; Muralidharan et al., 2016; Imbert and Papp (2015). Other examples of positive impacts from using digital technologies include Afghanistan (Callen et al., 2015) and Nigeria (Aker et al., 2014), suggesting that there are replicable opportunities for successful innovations. In India, the JAM framework for policy innovation has the potential to avoid a common problem in policymaking in that country, of broad and shallow interventions, although Ravi and Gakhar (2015) argue for breadth of financial services tied to digital innovation, to take advantage of economies of scope, given the fixed costs of infrastructure and adoption.[15]

Financial Literacy

On the demand side, financial literacy is an important factor in shaping financial inclusion. Consumers have to understand the nature of the products and services they are buying, as well as the implications of these purchases for their welfare. This may be relatively simple in the case of payments and transfers, but even bank accounts can present challenges in terms of weighing consumption and saving tradeoffs. Insurance products are inherently complicated by the difficulties of measuring uncertainty and evaluating risk.

Lusardi and Mitchell (2014) survey issues surrounding financial literacy, although their empirical evidence is from industrial countries, which also face challenges of educating consumers of financial services. In all countries, one basic problem is lack of information (Gine et al., 2014, for Mexico), but how information asymmetries are overcome can be crucial (Alan et al., 2015, for Turkey). Miller et al. (2014) surveyed evaluations of 188 financial education programs, and found weak evidence for positive impacts on financial knowledge, let alone decision-making. However, it appears that teaching simplified guidelines for behavior as rules-of-thumb can have a positive impact (Drexler et al., 2014).

Financial literacy can have different dimensions and contexts, and several studies focus on specific aspects, such as household saving or managing a business. Cole et al. (2011) used large field surveys in India and Indonesia and RCTs in Indonesia, to show that prices of financial services have an effect on demand. However, though financial literacy was an important

[15] Digital credit is showing some promise for financial inclusion in countries such as India. Creditworthiness does not have to be dependent on scanty financial history, but can be based on richer mobile phone usage history. Mobile phone usage can predict loan repayment (Björkegren & Grissen, 2015). Furthermore, as in the case of microfinance, dynamic incentives (larger loans at better terms) encourage repayment of digital loans. I am grateful to Eilin Francis for these points.

correlate of using financial services, financial training was not effective or cost efficient for promoting the use of bank accounts. In a business context, De Mel et al. (2014) conducted an RCT among low-income women in urban Sri Lanka to measure the impact of a commonly used business training course. They tried two treatments – training only and training plus a cash grant – over two years. Training alone changed business practices but had no impact on business profits, sales or capital stock. The grant plus training combination increased business profitability in the first eight months but this impact also dissipated in the second year. However, there was some evidence that training might be more effective for new owners. Karlan and Valdivia (2011) conducted an RCT in Peru to measure marginal impact of adding business training to a Peruvian group lending program (MFI) for female micro-entrepreneurs. Training had no effect on business revenue, profits, or employment, but there were business knowledge improvements among the entrepreneurs, and increased client retention rates for the MFI.

Halan and Sane (2017) evaluated the effectiveness of information disclosure in the context of the insurance market in India, focusing on a specific life insurance product. They presented product advertisements to customers with four different sets of disclosures: basic information, the actual rate of return on the product in addition to the first set, a benchmark return of a similar product in addition to the second set, and product features of a more cost-effective alternative life insurance product in addition to the third set. Participants in each case were asked to provide assessments of the product and hypothetical purchase decisions. The results suggest that consumers may lose focus with "too much" information, and that information is more likely to be valuable if understandable in the context of prior financial literacy, highlighting the complexity of making financial innovation work to the benefit of inexperienced consumers.

Behavioral Factors

Because financial services involve complexities with respect to intertemporal tradeoffs and judgments about uncertainty and risk, they are most subject to what economists characterize as behavioral factors, namely, various (mostly systematic) deviations from the ideal of economic rationality. Some of these factors are hard to disentangle from lack of information, and financial literacy considerations overlap with behavioral factors.

An important basic example of a behavioral bias is the difficulty that individuals have in committing to a savings strategy that they realize will be optimal for them over time. Ashraf et al., (2006, 2010) tested commitment savings products in the Philippines, with lock-in periods or penalties for early withdrawal. Women who were offered an individually-held commitment savings account reported increased decision-making power, and durable goods purchases shifted towards "female-oriented" goods, such as kitchen appliances. Those who used the commitment devices had significantly higher savings. In Kenya, Dupas and Robinson (2013) tested a simple "Safe Box" that allowed users to save for preventive or emergency health, and this significantly increased achievement of health savings goals. In an experiment in Uganda, primary school students were offered a "softer" commitment device, (funds in the savings account were available for withdrawal but labeled as being "for education"): combined with a parental

outreach program this increased spending on school supplies and improved test scores (Karlan and Linden, 2016).

Many other behavioral phenomena have been examined in the context of financial inclusion. For example, Duflo et al. (2011) showed that many farmers in Western Kenya failed to take advantage of apparently profitable fertilizer investments, apparently due to a combination of procrastination and new consumption opportunities, but they did invest in response to small, time-limited discounts on the cost of acquiring fertilizer, such as free delivery. Other studies (Beaman et al., 2014; Dupas and Robinson, 2014;, and Kremer, et al. 2015) show that various types of small business owners in Kenya make profit-reducing decisions with respect to keeping enough change, hours and days worked, and inventory management. A growing number of studies in this vein intersect with studies examining the design and impacts of microcredit schemes. Many of the studies for India discussed in earlier sections have behavioral components to their analysis.

Lessons and Conclusions

Financial inclusion is complex and multidimensional, and this paper has focused on decomposing financial inclusion into the provision of more specific financial services, and examining the empirical evidence for how well different components of financial inclusion can be accomplished, as well as the methods that might work in specific contexts. While the evidence for different countries and programs is variable and mixed, this survey suggests that well-designed and implemented research studies can provide clear answers for Indian contexts, for many aspects of financial inclusion. Therefore, careful empirical research can guide policy design in India for financial inclusion.

Turning to more specific conclusions and lessons, we begin with the previous surveys discussed in the introduction. Karlan and Morduch (2009) emphasize the shift from postulating hypothetical improvements in financial access to concrete lessons from experiments, pilots and trials in actual field settings. Aggarwal and Klepper (2013) emphasize how government policy changes can relax existing constraints to financial inclusion, especially with respect to savings, payments and financial literacy. Karlan et al. (2016) emphasize the positive evidence for the benefits of savings products and digital payments, and generally view digital technology as opening up new possibilities for reducing transaction costs, information asymmetries and market distortions. They suggest that microcredit and insurance present greater challenges, as do social norms that can disadvantage women, in particular. They also highlight issues of scaling up (including for digital efforts), offering integrated or complementary services, and linking financial inclusion to end goals such as health and education.

In India, much of recent policy making with respect to financial inclusion is broadly consistent with the direction supported by current research-based knowledge. For example, this includes government-led pushes to increases access to banking, insurance and digital payments. Cole et al. (2015) and Field et al. (2016) both, in very different contexts, highlight the importance of organizational innovations that improve incentives within the banking sector. This suggests that

simply expanding the number of bank accounts may not be an optimal policy. At the same time, organizational changes are delicate matters and need to be context specific.

In areas such as microcredit and small firm finance, the studies by Field et al. (2013), Raj and Sen (2013) and Barboni (2016) suggest that there is still much to learn in the Indian context about the specifics of relaxing financing constraints for small entrepreneurs, ranging from microenterprises to more substantial small and even medium firms. Issues of contract design, monitoring and enforcement, and training do not seem to be completely understood in the Indian context. In some cases, there is more detailed evidence for other countries, but the transferability of those lessons to India – indeed, even to specific Indian states – needs to be tested. There is also an obvious connection to issues of how the Indian banking sector functions on the side of making loans, in addition to the savings opportunities it offers. This relates back to the point about integration of different aspects of financial inclusion noted by Karlan et al. (2016).

Agricultural credit and farmers' insurance are another example of the need for an integrated approach to financial inclusion initiatives. Gaurav et al. (2011) and Mobarak and Rosenzweig (2013) provide newer evidence for India on how to design agricultural insurance that is more inclusive and sustainable, including issues of promoting adoption and inclusion (such as extending it to agricultural laborers and not just farmers). However, given variations in agricultural conditions around a large country such as India, as well as differences in income levels, further research can solidify the design of appropriate insurance products, as well as examine their integration with access to agricultural credit, market access (Mitra et al., 2012 and Maitra et al., 2014) and productive investment.

Health insurance is another area where Indian policymaking has been innovative in ways that seek to promote inclusion, and one where further expansion is planned. In this case, the potential link between financial inclusion and outcomes ought to be very direct, but the evidence is still being gathered. Studies by Berg et al. (2012) and Debnath and Jain (2015) represent useful investigations of the processes that drive acceptance and adoption of such innovations as health insurance, which are obvious preconditions for achieving inclusion and positive impacts on health outcomes.

Finally, the size of India's market and the diversity of areas of possible innovations in financial products and services, are strongly indicative of the need to conduct further studies of patterns of household financial behavior. Badarinza et al. (2017) is a good example of preliminary work on documenting these patterns, but much more needs to be done. Campbell et al. (2012) conducted a useful study of India's mortgage market, and plans to expand low income housing will increase the need for further such studies that emphasize financial inclusion. Complementing the understanding of specific markets for financial products and services, a much better understanding of financial literacy and effective methods for imparting financial education to consumers and small entrepreneurs is required in the Indian context. The study by Halan and Sane (2017) represents just a small slice of what policymakers and financial sector providers need to know about the potential behavior of individuals as innovations are designed and implemented.

In all of these cases, collaborations and coordination between policymakers, practitioners and researchers can be vital in achieving financial inclusion in multiple dimensions, making sure that this is done efficiently, and connecting financial inclusion to positive outcomes in health, education, productivity and employment.

References

Ahlin, C., Lin, J., & Maio, M. (2011). Where does microfinance flourish? Microfinance institution performance in macroeconomic context. *Journal of Development Economics*, 95(2), 105-120.

Aizenman, Joshua, Yothin Jinjarak, and Donghyun Park. 2015. Financial Development and Output Growth in Developing Asia and Latin America: A Comparative Sectoral Analysis. National Bureau of Economic Research, Working Paper 20917, January.

Aker, Jenny C., Rachid Boumnijel, Amanda McClelland and Niall Tierney. 2014. "Payment Mechanisms and Anti-Poverty Programs: Evidence from a Mobile Money Cash Transfer Experiment in Niger." Center for Global Development Working Paper 268.

Alan, Sule, Mehmet Cemalcilar, Dean Karlan, and Jonathan Zinman. 2015. "Unshrouding Effects on Demand for a Costly Add-on: Evidence from Bank Overdrafts in Turkey." NBER Working Paper No. 20956.

Alfaro, L., and A. Chari, (2009). India Transformed: Insights from the Firm Level 1988–2005. *Brookings India Policy Forum*, 6.

Alfaro, L., and A. Chari, (2014). Deregulation, Misallocation, and Size: Evidence from India. Working Paper, Harvard University, February.

Allen, F., R. Chakrabarti, S. De, J. Qian, & M. Qian (2007). Financing Firms in India. Working Paper.

Allen, T. (2016). Optimal (Partial) group liability in microfinance lending. *Journal of Development Economics*, 121, 201-216.

Anderson, M., Dobkin, C., & Gross, T. (2012). The effect of health insurance coverage on the use of medical services. *American Economic Journal: Economic Policy*, 4(1), 1-27.

Anson, J., Berthaud, A., Klapper, L. F., & Singer, D. (2013). Financial inclusion and the role of the post office. World Bank Policy Research Working Paper 6630, October.

Arcand, Jean Louis, Enrico Berkes, and Ugo Panizza. 2015. "Too much finance?" *Journal of Economic Growth*, 20(2): 105–148.

Aron-Dine, A., Einav, L., & Finkelstein, A. (2013). The RAND health insurance experiment, three decades later. *The Journal of Economic Perspectives*, 27(1), 197-222.

Ashraf, N., Karlan, D., & Yin, W. (2006). Tying Odysseus to the mast: Evidence from a commitment savings product in the Philippines. *The Quarterly Journal of Economics*, 635-672.

Ashraf, Nava, Dean Karlan, and Wesley Yin. 2010. "Female Empowerment: Impact of a Commitment Savings Product in the Philippines." *World Development* 38(3): 3334.

Ayyagari, M., A. Demirgüç-Kunt, V. Maksimovic (2010). Formal versus informal finance: Evidence from China, *Review of Financial Studies*, 23 (8), 3048-3097.

Badarinza, C., V. Balasubramaniam & T. Ramadorai. (2017). The Indian Household Finance Landscape, *India Policy Forum*, forthcoming.

Banerjee, A. V., & Duflo, E. (2008). Do firms want to borrow more? Testing credit constraints using a directed lending program.

Banerjee, Abhijit V., and Esther Duflo, (2011) *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*, Public Affairs, New York.

Banerjee, A., Duflo, E., & Hornbeck, R. (2014). Bundling health insurance and microfinance in India: There cannot be adverse selection if there is no demand. *American Economic Review*, 104(5), 291-297.

Banerjee, A., Duflo, E., Glennerster, R., & Kinnan, C. (2015). The miracle of microfinance? Evidence from a randomized evaluation. *American Economic Journal: Applied Economics*, 7(1), 22-53.

Banerjee, A., Karlan, D., & Zinman, J. (2015). Six randomized evaluations of microcredit: Introduction and further steps. *American Economic Journal: Applied Economics*, *7*(1), 1-21.

Banerjee, A., Duflo, E., Imbert, C., Santosh Mathew, S., & Pande, R.. (2016). Can E-Governance Reduce Capture of Public Programs? Experimental Evidence from a Financial Reform in India's Employment Guarantee. Working Paper.

Barboni, G. (2016). Repayment Flexibility in Microfinance Contracts: Theory and Experimental Evidence on Take-Up and Selection. Working Paper, Princeton University.

Bardhan, P. (2007). Globalization and Rural Poverty. In Nissanke, M. & Thorbecke, E. *The Impact of Globalization on the World's Poor: Transmission Mechanisms*. New York: Palgrave Macmillan, 145-162.

Bauer, M., Chytilová, J., & Morduch, J. (2012). Behavioral foundations of microcredit: Experimental and survey evidence from rural India. *American Economic Review*, 102(2), 1118-1139.

Beaman, L., J. Magruder, & J. Robinson. (2014). Minding small change among small firms in Kenya. *Journal of Development Economics* 108, 69-86

Bertrand, M., & Morse, A. (2011). Information disclosure, cognitive biases, and payday borrowing. *Journal of Finance*, *66*(6), 1865-1893.

Beck, T. (2006), Financing Constraints of SMEs in Developing Countries: Evidence, Determinants and Solutions. World Bank, Development Research Group Working Paper.

Beck, T., & Demirguc-Kunt, A. (2006). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & Finance*, 30 (11), 2931-2943.

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. *Journal of Economic Growth*, 12(1), 27-49.

Berg, E., Ghatak, M., Manjula, R., Rajasekhar, D., & Roy, S. (2013). Motivating knowledge agents: Can incentive pay overcome social distance? IGC Working Paper. F-35010-INC-1.

Binswanger-Mkhize, H. (2012). Is There Too Much Hype about Index-based Agricultural Insurance? *Journal of Development Studies*. 48 (2), pp. 187-200.

Björkegren, D. and Grissen, D. (2015). Behavior Revealed in Mobile Phone Usage Predicts Loan Repayment. Working paper, available at SSRN: https://ssrn.com/abstract=2611775.

Bourreau, M. and Valletti, T. (2015). Enabling Digital Financial Inclusion through Improvements in Competition and Interoperability: What Works and What Doesn't? Center for Global Development, Policy Paper 065.

Bruhn, M., & Love, I. (2014). The real impact of improved access to finance: Evidence from Mexico. *Journal of Finance*, 69 (3), 1347-1376.

Burgess, R., & Pande, R. (2005). Do Rural Banks Matter? Evidence from the Indian Social Banking Experiment. *American Economic Review*, 95(3), 780-795.

Burgess, R., Wong, G., & Pande, R. (2005). Banking for the Poor: Evidence from India. *Journal of the European Economic Association*, 3(2/3), 268-278.

Callen, M., De Mel, S., McIntosh, C., & Woodruff, C. (2014). *What are the headwaters of formal savings? Experimental evidence from Sri Lanka* (No. w20736). National Bureau of Economic Research.

Callen, Michael, Joshua E Blumenstock, Tarek Ghani, and Lucas Koepke. 2015. "Promises and Pitfalls of Mobile Money in Afghanistan: Evidence from a Randomized Control Trial". Working Paper.

Campbell, J. Y., Ramadorai, T., & Ranish, B. (2012). *How do regulators influence mortgage risk: Evidence from an emerging market* (No. w18394). National Bureau of Economic Research.

Čihák, Martin, Aslı Demirgüç-Kunt, Erik Feyen, and Ross Levine (2012), Benchmarking Financial Systems around the World, World Bank Policy Research Working Paper 6175, Washington DC: World Bank.

Cole, S. (2009). Fixing market failures or fixing elections? Agricultural credit in India. *American Economic Journal: Applied Economics*, 1(1), 219-250.

Cole, S., Sampson, T., & Zia, B. (2011). Prices or knowledge? What drives demand for financial services in emerging markets? *Journal of Finance*, 66(6), 1933-1967.

Cole, S., Stein, D., & Tobacman, J. (2014). Dynamics of Demand for Index Insurance: Evidence from a Long-Run Field Experiment. *American Economic Review*, 104(5), 284-290.

Cole, S., Kanz, M., & Klapper, L. (2015). Incentivizing Calculated Risk-Taking: Evidence from an Experiment with Commercial Bank Loan Officers. *Journal of Finance, 70*(2), 537-575.

Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2011). Does regulatory supervision curtail microfinance profitability and outreach? *World Development*, 39(6), 949-965.

Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2012). *Banking the world: empirical foundations of financial inclusion*. Cambridge, MA: MIT Press.

Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2016). The microfinance business model: enduring subsidy and modest profit. Working Paper.

De, S. and M. Singh (2014). Credit Rationing in Informal Markets: The Case of Small Firms in India. Center for Analytical Finance, University of California, Santa Cruz, Working Paper No. 6.

De Bock, O., and Gelade W. (2012). The Demand for Microinsurance: A Literature Review. ILO Microinsurance Innovation Facility, Research Paper 26, November.

De Mel, S., McKenzie, D., & Woodruff, C. (2011). Getting credit to high return microentrepreneurs: The results of an information intervention. *World Bank Economic Review*, 25(3), 456-485.

De Mel, S., McKenzie, D., & Woodruff, C. (2014). Business training and female enterprise start-up, growth, and dynamics: Experimental evidence from Sri Lanka. *Journal of Development Economics*, 106, 199-210.

Debnath, S., & Jain, T. (2015) Social Networks and Health Insurance Utilization. Report to IGC-India. IGC Working Paper. F-35304-INC-1.

Demirgüç-Kunt, A., & Klapper, L. (2013). Measuring financial inclusion: Explaining variation in use of financial services across and within countries. *Brookings Papers on Economic Activity*, 2013(1), 279-340.

Demirgüç-Kunt, A., Klapper, L., Van Oudheusden, P., & Zingales, L. (2013). Trust in Banks. Working paper. Washington: Development Research Group, World Bank.

Drexler, Alejandro, Greg Fischer, and Antoinette S. Schoar. 2014. "Keeping it Simple: Financial Literacy and Rules of Thumb." *American Economic Journal: Applied Economics* 6(2): 131.

Duflo, E., M. Kremer, & J. Robinson. (2011). Nudging farmers to use fertilizer: theory and experimental evidence from Kenya. *American Economic Review* 101 (6), 2350-2390

Dupas, P., Green, S., Keats, A., & Robinson, J. (2014). Challenges in banking the rural poor: Evidence from Kenya's western province. In *African Successes: Modernization and Development, Volume 3*. University of Chicago Press.

Dupas, P., & Robinson, J. (2013a). Savings constraints and microenterprise development: Evidence from a field experiment in Kenya. *American Economic Journal: Applied Economics*, 5(1), 163-192.

Dupas, P., & Robinson, J. (2013b). Why don't the poor save more? Evidence from health savings experiments. *The American Economic Review*, *103*(4), 1138-1171.

Dupas, P., & Robinson, J. (2014).The Daily Grind: Cash Needs, Labor Supply and Self-Control. NBER Working Paper 19264.

Dupas, P., Karlan, D., Robinson, J., & Ubfal, D. (2016). Banking the Unbanked? Evidence from three countries (No. w22463). National Bureau of Economic Research.

Engelhardt, G. V., & Grubera, J. (2011). Medicare Part D and the financial protection of the elderly. American Economic Journal: Economic Policy, 3(4), 77-102.

Field, E., Martinez, J., & Pande, R. (2016). Does Women's Banking Matter for Women? Evidence from Urban India. IGC Working Paper, November, S-35306-INC-1.

Field, E., Pande, R., Papp, J., & Rigol, N. (2013). Does the classic microfinance model discourage entrepreneurship among the poor? Experimental evidence from India. *American Economic Review*, 103(6), 2196-2226.

Finkelstein, A., Taubman S., Wright, B., Bernstein, M., Gruber, J., Newhouse, J. P., Allen, H. and Baicker, K. (2011). The Oregon health insurance experiment: evidence from the first year (No. w17190). National Bureau of Economic Research.

Gangadharan, L., Jain, T., Maitra, P., & Vecci, J. (2014). The behavioral response to women's empowerment programs: Experimental evidence from JEEViKA in Bihar. IGC Working Paper. S-34111-INB-1

Gaurav, S., Cole, S., & Tobacman, J. (2011). Marketing complex financial products in emerging markets: Evidence from rainfall insurance in India. *Journal of marketing research*, 48(SPL), S150-S162.

Gill, A. (2016). Agricultural Credit in Punjab: Have Policy Initiatives Made a Dent in Informal Credit Markets? In *Economic Transformation of a Developing Economy*, ed. L. Singh and N. Singh, pp. 165-182. Singapore: Springer.

Giné, X. (2011). Access to capital in rural Thailand: an estimated model of formal vs. informal credit. *Journal of Development Economics*, 96(1), 16-29.

Giné, X. (2015). Innovations in insuring the poor: Experience with weather index-based insurance in India and Malawi. World Bank.

Giné, X., C. Martinez Cuellar, and R. Keenan Mazer. (2014). "Financial (dis)information: Evidence from an audit study in Mexico." World Bank Policy Research Working Paper 6902.

Giné, X., Townsend, R. and Vickery, J. (2008). Patterns of Rainfall Insurance Participation in Rural India. *World Bank Economic Review*, 22 (3): 539-566.

Goyal, A. (2010). Information, Direct Access to Farmers, and Rural Market Performance in Central India. *American Economic Journal: Applied Economics*. 2 (3), 22-45.

Halan, M. and R. Sane (2016). Misled and Mis-sold: Financial misbehaviour in retail banks? NSE–IFMR Finance Foundation Financial Deepening and Household Finance Research Initiative, Working Paper, August.

Halan, M. and R. Sane (2017). Do disclosures matter? The case of life insurance. Working Paper, January.

Imbert, C. and J. Papp. (2015). Labor Market Effects of Social Programs: Evidence from India's Employment Guarantee, *American Economic Journal: Applied Economics*, 7 (2), 233–263.

Islam, A., & Maitra, P. (2012). Health shocks and consumption smoothing in rural households: Does microcredit have a role to play? *Journal of Development Economics*, 97(2), 232-243.

Ito, S. and Kono, H. (2010). Why Is the Take-Up of Microinsurance So Low? Evidence from a Health Insurance Scheme in India. *The Developing Economies*. 48(1), 74-101.

Jack, W., Ray, A., & Suri, T. (2013). Transaction networks: Evidence from mobile money in Kenya. *The American Economic Review*, *103*(3), 356-361.

Jack, W., & Suri, T. (2014). Risk sharing and transactions costs: Evidence from Kenya's mobile money revolution. *The American Economic Review*, *104*(1), 183-223.

Jutting, J.P. (2003), Do Community-based Health Insurance Schemes Improve Poor People's Access to Health Care? Evidence from Rural Senegal, *World Development*, 32 (2), 273-288.

Kaboski, J. P., & Townsend, R. M. (2011). A Structural Evaluation of a Large-Scale Quasi-Experimental Microfinance Initiative. *Econometrica*, 79(5), 1357-1406.

Kaboski, J., & Townsend, R. (2012). The Impact of Credit on Village Economies. *American Economic Journal: Applied Economics*, 4(2), 98-133.

Karan, A. K., Yip, W. C. M., & Mahal, A. (2015). Extending Health Insurance to the Poor in India: An Impact Evaluation of Rashtriya Swasthya Bima Yojana on Financial Risk Protection. Available at SSRN.

Karlan, D., Knight, R., & Udry, C. (2015). Consulting and capital experiments with microenterprise tailors in Ghana. *Journal of Economic Behavior & Organization*, *118*, 281-302.

Karlan, D., Osei, R., Osei-Akoto, I., & Udry, C. (2014). Agricultural Decisions after Relaxing Credit and Risk Constraints. *Quarterly Journal of Economics*, 129(2), 597-652.

Karlan, Dean, and Leigh Linden. (2014). "Loose Knots: Strong versus Weak Commitments to Save for Education in Uganda." Working Paper.

Karlan, D., & Valdivia, M. (2011). Teaching entrepreneurship: Impact of Business Training on Microfinance Clients and Institutions. The Review of Economics and Statistics, 93(2), 510-527.

Karlan, D., Kutsoati, E., McMillan, M., & Udry, C. (2011). Crop Price Indemnified Loans for Farmers: A Pilot Experiment in Rural Ghana. *Journal of Risk and Insurance*, 78(1), 37-55.

Karlan, D., & Zinman, J. (2009). Expanding credit access: Using randomized supply decisions to estimate the impacts. *Review of Financial Studies*, hhp092.

Karmakar, K. G., Banerjee, G. D., & Mohapatra, N. P. (2011). *Towards Financial Inclusion in India*. New Delhi: SAGE Publications India.

Kendall, Jake, Maurer, Bill, Machoka, Phillip and Clara Veniard (2011), An Emerging Platform: From Money Transfer System to Mobile Money Ecosystem, *Innovations*, 6(4), 49–64.

Kinnan, C., & Townsend, R. (2012). Kinship and financial networks, formal financial access, and risk reduction. *American Economic Review*, *102* (3), 289-293.

Kochar, A. (2011). The Distributive Consequences of Social Banking: A Microempirical Analysis of the Indian Experience. *Economic Development and Cultural Change*, 5(2), 251-280.

Kremer, M., J. Lee, J. Robinson, & O. Rostapshova. (2015). Rates of Return, Optimization Failures, and Behavioral Biases: Evidence from Kenyan Retail Shops. Working Paper.

Law, Siong Hook, and Nirvikar Singh. 2014. Does too much finance harm economic growth? *Journal of Banking & Finance*, 41: 36 – 44.

Love, I., & Pería, M. S. M. (2015). How bank competition affects firms' access to finance. *World Bank Economic Review*, 29(3), 413-448.

Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, *52*(1), 5-44.

Maitra, P., Mitra, S., Mookherjee, D., Motta, A., & Visaria, S. (2014). Financing Smallholder Agriculture: An Experiment with Agent-Intermediated Microloans in India (No. w20709). National Bureau of Economic Research.

Mas, I. & O. Morawczynski (2009). Designing Mobile Money Services: Lessons from M-PESA. *Innovations*, Spring, 77-91.

McCord, M.J. (2001), Health care microinsurance—case studies from Uganda, Tanzania, India and Cambodia. *Small Enterprise Development.* Vol.12 No.1. pp. 1-14.

Medhi, I., S.N.N. Gautama & K. Toyama (2009). A comparison of mobile money-transfer UIs for non-literate and semi-literate users. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, pp. 1741-1750.

Mehmood, Y., Ahmad, M., & Anjum, M.B. (2012). Factors Affecting Delay in Repayments of Agricultural Credit: A Case Study of District Kasur of Punjab Province. *World Applied Sciences Journal* 17 (4): 447-451.

Melzer, B. T. (2011). The real costs of credit access: Evidence from the payday lending market. *Quarterly Journal of Economics*, 126(1), 517-555.

Miller, M., Reichelstein, J., Salas, C., Zia, B. (2014). Can You Help Someone Become Financially Capable? A Meta-Analysis of the Literature. World Bank.

Mitra, S., D. Mookherjee, M.Torero & S. Visaria. (2012). Asymmetric Information and Middleman Margins: An Experiment with West Bengal Potato Farmers. IGC Working Paper, F-3010-INC-1.

Mobarak, A. M., & Rosenzweig, M. R. (2013). Informal risk sharing, index insurance, and risk taking in developing countries. *American Economic Review*, 103(3), 375-380

Muralidharan, K., P. Niehaus, and S. Sukhtankar. (2016). Building state capacity: Evidence from biometric smartcards in India. *American Economic Review,* 106(10), 2895-2929.

Nair, R. (2010). Weather-based Crop Insurance in India: Towards a Sustainable Crop Insurance Regime? *Economic and Political Weekly*, 45(34), 73-81.

Nandi, A., A. Ashok, R. Laxminarayan (2013). The Socio-economic and Institutional Determinants of Participation in India's Health Insurance Scheme for the Poor, *PLoS ONE* 8(6): e66296. doi:10.1371/journal.pone.0066296.

Oboh, V.U. and Ekpebu, I. D. (2011). Determinants of formal agricultural credit allocation to the farm sector by arable crop farmers in Benue State, Nigeria, *African Journal of Agricultural Research*, Vol. 6 (1), pp. 181-185.

Palacios, R., J. Das, C. Sun (2011). eds., *India's Health Insurance Scheme for the Poor, Evidence from the Early Experience of the Rashtriya Swasthya Bima Yojana*, May, New Delhi: Centre for Policy Research.

Pitt, M. M. & S. R. Khandker (1998). The impact of group-based credit on poor households in Bangladesh: Does the gender of participants matter? *Journal of Political Economy*, 106.

Platteau, J.-P., De Bock, O., and Gelade W. (2017). The Demand for Microinsurance: A Literature Review. *World Development*, 94, 139–156.

Prina, S. (2015). Banking the poor via savings accounts: Evidence from a field experiment. *Journal of Development Economics*, 115, 16-31.

Rahman, M. W. (2011), Policies and Performances of Agricultural/Rural Credit in Bangladesh: What is the Influence on Agricultural Production? *African Journal of Agricultural Research*, 6(31), 6440-6452.

Raj, R.S.N., & Sen, K. (2013). How important are credit constraints for small firm growth? Evidence from the Indian informal manufacturing sector. IGC Working Paper. F-35041-INC-1.

Raju, K. V., Naik, G., Ramseshan, R., Pandey, T., Joshi, P., Anantha, K. H., Rao, A. V. R. K., Shyam, D. M., & Charyulu, D. K. (2016). Transforming Weather Index-Based Crop Insurance in India: Protecting Small Farmers from Distress. Status and a Way Forward. Research Report IDC-8. [REPORT]

Rao, M., A. Katyal, P. V. Singh, A. Samarth, S. Bergkvist, M. Kancharla, A. Wagstaff, G. Netuveli and A. Renton (2014), Trends in addressing inequalities in access to hospital care in Andhra Pradesh and Maharashtra states of India: A difference-in-differences study, *BMJ Open.*

Ravi, S. and Bergkvist, S. (2015). Are Publicly Financed Health Insurance Schemes Working in India? *India Policy Forum*, 11 (1), 158-192.

Ravi, S & Gakhar, S. (2015). Advancing Financial Inclusion in India beyond the Jan-Dhan Yojana. Brookings India IMPACT Series. Brookings Institution India Center.

Roodman, D., & Morduch, J. (2009). The impact of microcredit on the poor in Bangladesh: Revisiting the evidence. Center for Global Development Working Paper, 174.

Sahay, Ratna, Martin Cihak, Papa N'Diaye, Adolfo Barajas, Diana Ayala Pena, Ran Bi, Yuan Gao, Annette Kyobe, Lam Nguyen, Christian Saborowski, Katsiaryna Svirydzenka, and Reza Yousefi (2015). Rethinking Financial Deepening: Stability and Growth in Emerging Markets. International Monetary Fund IMF Staff Discussion Notes 15/8.

Sarma, M., & Pais, J. (2011). Financial inclusion and development. *Journal of International Development*, 23(5), 613-628.

Selvaraj, S., & Karan, A. (2012). Why Publicly-Financed Health Insurance Schemes are Ineffective in Providing Financial Risk Protection, *Economic & Political Weekly*, 60-68.

Sen, A. (1999). *Development as Freedom.* New York: Oxford University Press.

Shapiro, D. A. (2015). Microfinance and dynamic incentives. *Journal of Development Economics*, 115, 73-84.

Sharma, B. K., & Kumawat, R. C. (2014). Repayment performance of institutional agricultural credit in Jaipur district of Rajasthan. *Economic Affairs*, 59(2), 263-272.

Shukla, R. (2015). Corporate Financing in India: Some Stylized Facts of an Emerging Economy. *International Journal of Management Excellence*. Vol. 5 No. 2.

Singh, N. (2015). Banking on better credit risk management. *Financial Express*, December 11, http://www.financialexpress.com/opinion/banking-on-better-credit-risk-management/177207/.

Singh, N. D. (2012). Agricultural Credit Problems of Marginal and Small Farmers in Punjab. *International Research Journal of Agricultural Economics and Statistics*, 3(2), 278-283.

Somville, Vincent and Lore Vandewalle (2015) "Saving by Default: Evidence from a Field Experiment in India." Working Paper.

Sood, N., Bendavid, E., Mukherji, A., Wagner, Z., Nagpal, S., & Mullen, P. (2013). Government health insurance for people below poverty line in India: quasi-experimental evaluation of insurance and health outcomes. *BMJ (Clinical research ed.)*, 349, g5114-g5114.

Takahashi, K., Ikegami, M., Sheahan, M., & Barrett, C. B. (2016). Experimental Evidence on the Drivers of Index-Based Livestock Insurance Demand in Southern Ethiopia. *World Development*, 78, 324-340.

Taylor, M. (2012). The antinomies of 'financial inclusion': debt, distress and the workings of Indian microfinance. *Journal of Agrarian Change*, 12(4), 601-610.

Van Rooyen, C., Stewart, R., & De Wet, T. (2012). The impact of microfinance in sub-Saharan Africa: a systematic review of the evidence. *World Development*, 40(11), 2249-2262.

Wagner, C. (2012). From Boom to Bust: How different has microfinance been from traditional banking? *Development Policy Review*, 30(2), 187-210.

Wang, H., Yip, W., Zhang, L., Wang, L., & Hsiao, W. (2005). Community-based health insurance in poor rural China: The distribution of net benefits. *Health Policy and Planning*. 20(6), 366-374.

World Bank (2014). *Global Financial Development Report 2014: Financial Inclusion*. Washington, DC: World Bank.

Young, N. (2015). Formal Banking and Economic Growth: Evidence from a Regression Discontinuity Analysis in India. Working Paper, Boston University, April.